



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,392	03/15/2004	Ajay Garg	42P17839	3155
59796	7590	12/21/2007		
INTEL CORPORATION c/o INTELLEVATE, LLC P.O. BOX 52050 MINNEAPOLIS, MN 55402			EXAMINER ZHE, MENG YAO	
			ART UNIT 2195	PAPER NUMBER
			MAIL DATE 12/21/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/801,392

Applicant(s)

GARG ET AL.

Examiner

MengYao Zhe

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-22 are presented for examination.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The following claim languages are unclear and indefinite:

- i) Claim 2, it is uncertain what a "Virtual Machine Extension mode" is <i.e. is this an operating system?>.

#### ***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 17-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to a signal directly or

indirectly by claiming a medium and the Specification recites evidence where the computer readable medium is define as a "wave" (such as a carrier wave). In that event, the claims are directed to a form of energy which at present the office feels does not fall into a category of invention. The following link on the World Wide Web is for the United States Patent And Trademark Office (USPTO) policy on 35 U.S.C. §101.

<[http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101\\_20051026.pdf](http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf)>

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 3-7, 10, 13-17, 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Lowell et al., Pub No. 2005/0076324 (hereafter Lowell).

8. As per claims 1, 10, Lowell teaches a system comprising:

a processor capable of running virtual machines, the processor having at least two modes of operation, wherein a first processor mode is to run a virtual machine (Para 6; Para 14, lines 2-4; Pg 6, claim 29);

memory operatively coupled to the processor, the memory storing a virtual management control structure (VMCS) to define authorized access to system resources (Para 6);

a monitor to run in a second processor mode (Para 6);

means for automatically switching from the first processor mode to the second processor mode based on an attempted access of system resources defined in the VMCS (Para 22, lines 25-28; Para 23).

9. As per claims 3, 13, 19, Lowell teaches wherein the monitor is a runtime services monitor (RSM) to execute a runtime service on behalf of a virtual machine, the virtual machine to run in the first processor mode, wherein the RSM is to place results of the runtime service execution in a shared memory location accessible by the virtual machine (Para 33).

10. As per claims 4, 15, 21, Lowell teaches wherein the processor is to run more than one virtual machine (Para 6).

11. As per claims 5, 14, 20, Lowell teaches wherein the processor is capable of running a first virtual machine simultaneously with a second virtual machine where the virtual machines use different operating systems (Para 1, lines 1-3; Para16).

12. As per claims 6, 7, Lowell teaches wherein the monitor is to access at least one of data and instructions to be protected from the virtual machine (Para 23).

13. As per claims 10, 17, Lowell teaches a method for protecting runtime services, comprising:

attempting access to a system resource by an operating system, wherein the operating system runs in virtual machine execution mode on a processor (Para 6);

automatically switching the processor mode to monitor mode from virtual machine execution mode, in response to the attempted access (Para 22, lines 25-28; Para 23);

accessing the system resource by the monitor ( Para 23, lines 14-17);

switching the processor mode back to virtual machine execution mode from monitor mode (Para 37, lines 8-11; Para 38, lines 21-23).

14. As per claims 16, 22, Lowell teaches wherein the monitor is a virtual machine monitor having a runtime services monitor component (Para 31).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 2, 8, 9, 11, 12, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowell et al., Pub No. 2005/0076324 (hereafter Lowell).

17. As per claim 2, Lowell does not specifically teach wherein the first processor mode is Virtual Machine Extension (VMX) mode.

However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Lowell with wherein the first processor mode is Virtual Machine Extension (VMX) mode since Lowell teaches that the operating system running on the virtual machine maybe any type of system (Para 16, lines 1-5), which does not exclude Virtual Machine Extension mode.

18. As per claims 8, 11, 18, Lowell teaches the virtual machine may try to access specific parts of memory that traps to the virtual machine monitor. Lowell does not specifically teach that this special memory may contain a runtime service, wherein the runtime service comprises at least one item selected from the group consisting of code and data.

However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Lowell with the special memory containing a runtime service, wherein the runtime service comprises at least one item selected from the group consisting of code and data, since memory is capable of containing anything including code and data.

19. As per claims 9, 12, Lowell teaches the virtual machine may try to access specific parts of memory that traps to the virtual machine monitor. Lowell does not specifically teach that this special memory may contain an address of a function pointer, wherein the function pointer points to the corresponding runtime service.

However, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Lowell with the special memory containing an address of a function pointer, wherein the function pointer points




to the corresponding runtime service, since memory is capable of containing anything including function pointer.

### **Conclusion**

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MengYao Zhe whose telephone number is 571-272-6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached at 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
MENG-AI T. AN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100